

# Old is Gold | SLC

## Old Question Paper of Compulsory Science

### For: Class 10 | Year: 2070 (2014)

Subject Code: RE-111'E' | Full Marks: 75 | Pass Marks: 24 | Time: 2 hrs 15 Minutes

**Answer all the questions: Physics**

1. (a) What is gravitational constant? What happens to the weight of an object when it is taken from earth to the moon? Why the mass of earth is  $6 \times 10^{24}$  kg. What is the value of acceleration due to gravity of an object which is at a distance of 19200 km from centre of earth?

( $G = 6.67 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$ ) [1 + 0.5+0.5+2.5=4.5]

(b) Fossil fuel energy is also a form of solar energy, how? Use of hydropower should be increased instead of coal and mineral oil, why? [1.5+1.5 = 3]

2. (a) On which principle does hydraulic brake base? State this principle. Prove that the hydraulic press is force multiplier. [1.5+2 = 3.5]

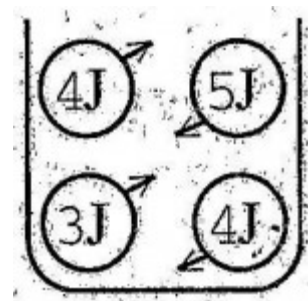
(b) Write two factors that affect liquid pressure. The different weights of an object on weighing in three different media pure water, solution of salt and water and air are given in the table. Study and answer the given questions: [1+1+1=3]

Media	Weight
X	25 N
Y	20 N
Z	15 N

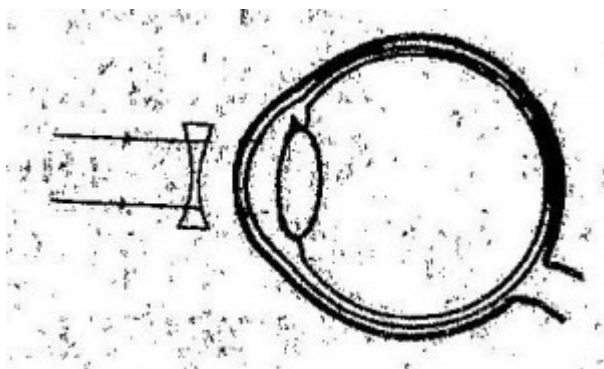
(i) Which would be the air and solution of salt and water out of three media X, Y and Z?

(ii) What is the weight of water displaced by the body in pure water?

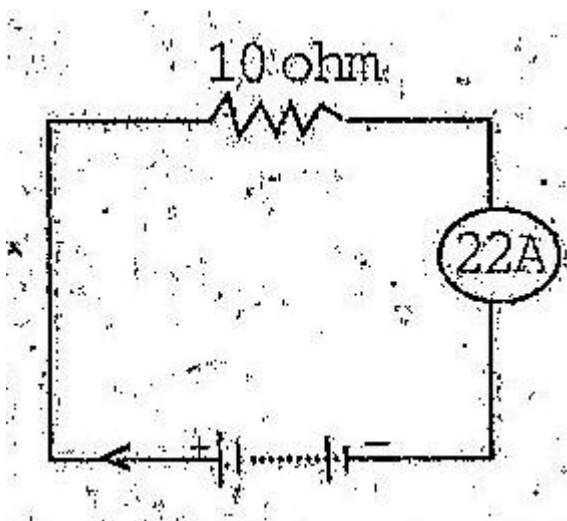
3. (a) Figure shows the kinetic energy of different molecules, than find out the average kinetic energy of the molecules. What is the specific heat capacity of sand if  $1.6 \times 10^5 \text{ J}$  of heat energy is required to raise the temperature of 10 kg sand from  $14^\circ\text{C}$  to  $34^\circ\text{C}$ ? [1.5 + 2 = 3.5]



(b) What is the meaning of the saying “the power of a lens is 1 dioptre? Write two differences between principal focus and focal length. Copy the given diagram and complete the ray diagram. [1+2+1=4]



4. (a) Write the formula to find out electric power consumption. In which effect of electricity is an electric bell based? Find out the total voltage in the given electric circuit. [1+0.5+2=3.5]



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(b) What happens to the magnitude of the induced electromotive force (emf) in an electric generator if the speed of rotor is double? Why? If in a circuit, primary voltage of 220V contains 1000 turns of primary coil, then how many turns of secondary coil is required to produce secondary voltage of 55V in a transformer? [0.5+1.5+2=4]

### Chemistry

5. (a) Answer the following questions on the basis of the given table. [1+1+1+1.5=4.5]

Name of element	Electronic configuration
X	$1s^2 2s^2 2p^6 3s^1$
Y	$1s^2 2s^2 2p^6 3s^2 3p^5$

Z

$1s^2 2s^2 2p^6 3s^2 3p^6$

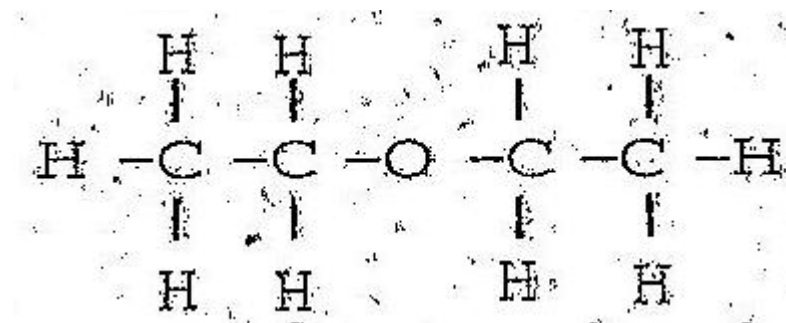
(i) Write the name of elements indicated by X and Y.

(ii) Write the blocks of the element X and Z.

(iii) Write the valency and chemical nature of element Z.

(iv) Write the balanced chemical equation between element X and Y. Which type of chemical reaction is it?

(b) What is Haber's process? Write any two uses of carbon dioxide gas. Write the name and one use of the following compound.  $[1 + 1 + 1 = 3]$



6. (a) Write the name of any two ores of aluminum. Write the balanced chemical equation for the chemical reaction between concentrated sulphuric acid and iron.  $[1 + 2 = 3]$

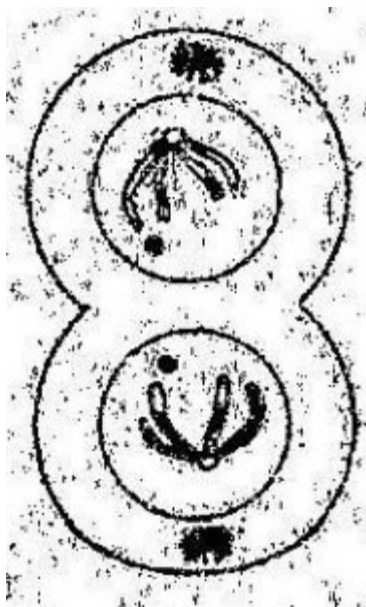
(b) What is salt? Why is NaHSO<sub>4</sub> called acidic salt? Write any two differences between organic fertilizer and inorganic chemical fertilizer.  $[1 + 1.5 + 2 = 4.5]$

### Biology

7. (a) Write a non-living character found in virus. Why is a person infected by polio caused paralysis? Write any two functions of medulla oblongata.  $[1 + 1 + 2 = 4]$

(b) Write any two differences between blood cell and plasma. Write name of any two valves present in human heart. Name the blood vessels which carry pure blood from lung to heart.  $[2 + 1 + 0.5 = 3.5]$

8. (a) Identify the stage and type of cell division given in the diagram. What is the difference between the cytokinesis of plant cell and animal cell? Mitosis cell division helps to maintain genetic stability, clarify.  $[1 + 1 + 1 = 3]$



(b) What are hermaphrodite animals? Write any two advantages of vegetative propagation. Clarify the alternation of generation in the lifecycle of fern plant. [1+2+1.5=4.5]

9. (a) Write one difference between DNA and RNA on the basis of structure. A hybrid Red (Rr) pea plant is self pollinated, show the result in chart. Also write its phenotypic and genotypic ratio. [1+1.5+1=3.5]

(b) What is ammonification? Show the pyramid of biomass of terrestrial and aquatic ecosystem in figure. Why snake is called cold blooded animal? Give reason. [1+2+1=4]

10. (a) What are fossils? Write the Jeans and Jeffery's hypothesis about the origin of the Earth. Atmosphere is called a protective umbrella, why? Which era is called era of creepers? Write. [1+2+1+0.5=4.5]

(b) What is solar wind? How are black hole formed? Write. [1+2=3]